J. New York Entomol. Soc. 96(1):26–29, 1988

FOSSIL CYDNIDAE (HETEROPTERA) FROM THE OLIGO-MIOCENE AMBER OF CHIAPAS, MEXICO

Donald B. Thomas, Jr.

USDA-ARS Screwworm Research, Apartado Postal 544, Tuxtla Gutierrez,
Chiapas, Mexico

Abstract.—The family Cydnidae (Heteroptera) is represented by 2 known specimens in fossil amber from Chiapas, Mexico. One is an immature which cannot be placed with certainty; the other is in the Amnestinae, *Amnestus guapinolinus,* new species. The specimens are approximately 24 million years old and are the first fossil Cydnidae reported from amber.

Fossil Heteroptera have been reported in the Mexican amber by Wygodzinsky (1959) in the Dipsocoridae, and by Hurd et al. (1962) in the Aradidae, Hebridae and Isometopidae. Neither cydnids nor other Pentatomoidea have been reported from Mexican amber. Larsson (1978) indicated that this family is absent from the Baltic amber as well, hence I believe that these are the first definite records of cydnids from fossiliferous amber, although Dolling (1981) mentions that he has seen a thaumastellid in Lebanese amber from the lower Cretaceous.

I have had the opportunity to acquire amber from the Simojovel region of Chiapas, and to examine the private holdings of persons dealing in the amber trade, most of which is destined to become jewelry. Durham and Hurd (1957) have dated the Simojovel amber deposits as upper Oligocene to lower Miocene, based on associated marine fossils. The Oligo-Miocene boundary is now estimated at 23.7 Ma (Berggren et al., 1985).

To date I have examined two specimens belonging to the family Cydnidae; one, an adult assignable to the subfamily Amnestinae and the other a 5th instar nymph, which is not assignable to any subfamily with certainty.

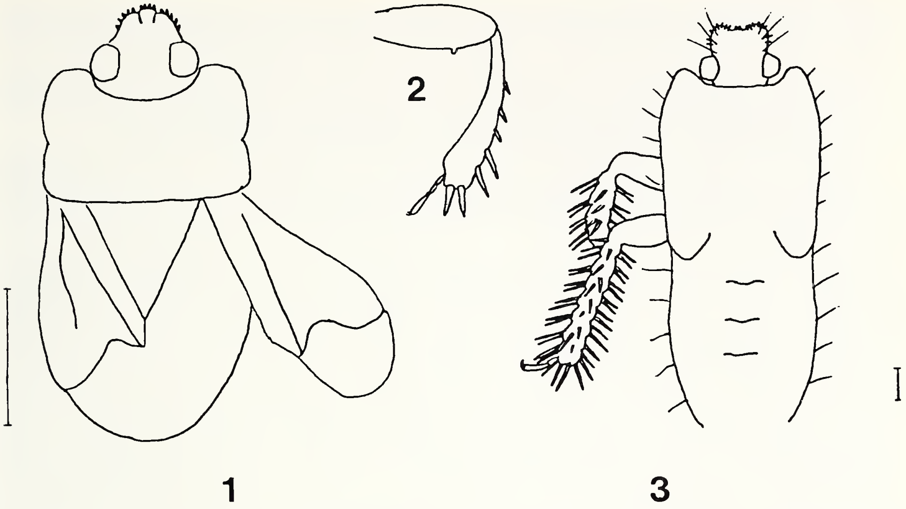
Amnestus guapinolinus, new species

Description. Elongate-oval (Fig. 1); length 1.6 mm, width 0.95 mm; color light brown, membrane of corium clear, transparent. Intramargin of juga each with five pegs; tylus slightly produced relative to juga and bearing four pegs at tip. Antennae appearing four segmented, as in other members of genus; pedicel divisions inconspicuous.

Pronotum with weak transverse impression; cervical margin deeply concave. Protibia with three short and two long lateral spurs on outer margin and two long spurs at apex; inner margin unarmed. Profemora with small, blunt, tubercle approx. one-third distance from apex on inner face (Fig. 2); meso- and metafemora unarmed.

Scutellum triangular, without apical lobe; slightly longer than wide. Hemelytra with claval commissure; apical margin of corium sinuate, though not as strongly sinuate as in *A. unidentatus*; embolar angle not prolonged as in that species.

Holotype. Female: Simojovel area, Chiapas, Mexico. Embedded in a cut and polished piece of fossil amber, polygonal in shape, measuring 3.4, 2.5 by 1.7 cm in



Figs. 1–3. 1, 2. *Amnestus quapinolinus* n. sp. 1. Dorsal view. 2. Anterior view, left, front leg. 3. Cydnidae, *incertae sedis,* dorsal view. Vertical bar = 0.5 mm.

dimension. Cat. No. CV-020. Private collection of Sr. Carlos Villar, Simojovel, Chiapas.

Remarks. This species is small, even for members of the genus *Amnestus,* which range in size from 1.6–4.5 mm. Froeschner (1960) provides a review of the genus. It is the only genus in the subfamily Amnestinae and is restricted to the western hemisphere. *Amnestus* can be recognized by the presence of 4 or 5 pegs on the tip of the tylus, but most importantly, by the presence of a claval commissure. This species differs from the extant species by the presence of a blunt, profemoral spur about one-third the distance from its apex. Some male *Amnestus* have a spine on the profemur, but this is medial to basal in position and is supposedly an important secondary sexual characteristic. Froeschner (1960) notes that there was confusion in the past with some earlier descriptors who thought it was the females that had the profemoral spines. The presence of a profemoral process in this female should not be accorded undue significance since metafemoral spines are found in the females of some species. *Amnestus quapinolinus* also is unique in having the scutellum longer than wide. In all extant *Amnestus* the scutellum is wider than long or subequal. In its small size, number of jugal pegs and slightly protruding tylus, it most closely resembles *A. brunneus* Signoret, a species which is known from Oaxaca.

Cydnidae, *incertae sedis*

This specimen is a 5th instar nymph (Fig. 3), 6.5 mm in length, which has undergone heterogenous distortion, a not uncommon feature of amber fossils, such that the body has become extremely dorso-ventrally compressed. Since the specimen was an immature, the wings, scutellum and metapleural evaporatorium are not available for analysis; and since it is these structures which have many of the most diagnostic features, it cannot be assigned to any fossil or extant genus. Nevertheless, the following salient characters are evident. The tibiae are heavily bristled and all tarsi are present. The pronotal margins have six long, thickened setae on each side. The tylus and juga are subequal, the tip of the tylus has 2 pegs, each jugum has eight submarginal pegs and three long setae. In addition, the disc of each jugum has a long seta.

Froeschner lists five subfamilies of Cydnidae among the extant species. Dolling lists eight, but this includes three groups usually given family status, Thaumastellidae, Corimelaenidae and Thyreocoridae. Since this specimen has two pegs on the tylus, submarginal setae on the pronotum and all of its tarsi, it could be placed in the Cydninae. Cydninae are known from three genera from the Eocene of Colorado (Cockerell, 1909). However, the majority of fossil cydnids known from the North American Paleogene, including four genera from the Florissant shales, (Scudder, 1890), and *Paleofroeschnerius* from Tennessee (Schaefer and Crepet, 1986), have a distinctive, short, triangular scutellum. An elongate scutellum with an apical lobe, is the usual condition in the Cydninae. A short triangular scutellum is typical of the Amnestinae but, none of these genera seem to have the claval commissure that characterizes Amnestines. Popov (1986) has described a subfamily, Clavicorinae, from the Mesozoic of Mongolia which is characterized by a short, triangular scutellum and a claval commissure. They differ from the Amnestinae by their larger size. The Cenozoic genera could be considered to belong to an extinct subfamily, or they could represent forms intermediate between the Cydninae and the Amnestinae or Clavicorinae. Obviously, the immature status of the present specimen occludes its placement within, or its exclusion from, any of these schemes.

This specimen occurs in a piece of amber which originates from the Simojovel area of Chiapas and I am depositing it as a voucher for the Family Cydnidae from the Mexican Oligo-Miocene with the American Museum of Natural History. It has my specimen number DT-001.

ACKNOWLEDGMENTS

I am grateful to Sr. Carlos Villar for access to his private collection of amber fossils and to Carl Schaefer for a translation of Popov's description of the Clavicorinae.

LITERATURE CITED

Berggren, W. A., D. V. Kent, J. J. Flynn and J. A. Van Couvering. 1985. Cenozoic geochronology. Bull. Geol. Soc. Am. 96:1407–1418.

Cockerell, T. D. A. 1909. Fossil insects from Colorado. Entomologist 42:170–174.

Dolling, W. R. 1981. A rationalized classification of the burrower bugs (Cydnidae). Syst. Entomol. 6:61–76.

Durham, J. W. and P. D. Hurd. 1957. Fossiliferous amber of Chiapas, Mexico. Bull. Geol. Soc. Amer. 68:1824.

Froeschner, R. C. 1960. Cydnidae of the western hemisphere. Proc. U.S. Natl. Mus. 111:337–680.

Hurd, P. D., R. F. Smith and J. W. Durham. 1962. The fossiliferous amber of Chiapas, Mexico. Ciencia 21:107–118.

Larsson, S. G. 1978. Baltic Amber—A Palaeobiological Study. Entomomonograph Vol. 1. Scandinavian Science Press, Ltd., Klampenborg, Denmark, 192 pp.

Popov, Yu. A. 1986. Infraorder Pentatomomorpha, superfamily Pentatomoidea Leach 1815, family Cydnidae Billberg, 1820. *In:* Tatarinov, L. P. and B. Luvsandanazan (eds.), Insects in Early Cretaceous Ecosystems of West Mongolia. Moscow, Nauka, Trans. Palaeontol. Inst. Acad. Sci., U.S.S.R. 212:71–73.

Schaefer, C. W. and W. L. Crepet. 1986. A new burrower bug (Heteroptera: Cydnidae) from the Paleocene/Eocene of Tennessee. J. New York Entomol. Soc. 94:296–300.

Scudder, H. S. 1890. The tertiary insects of North America. Rept. U.S. Geol. Surv. Terr. 13: 1–662.

Wygodzinsky, P. 1959. A new Hemipteran (Dipsocoridae) from the Miocene amber of Chiapas, Mexico. J. Paleontol. 33:853–854.

Received March 10, 1987; accepted May 7, 1987.